

WHAT IS CLAIMED IS:

1. A method for fabricating a semiconductor integrated circuit device, comprising the steps of:
  - (a) introducing a wafer into a single wafer heat treatment chamber of an oxidation furnace;
  - (b) replacing gas ambient, in the heat treatment chamber where the wafer has been introduced, with nitrogen gas;
  - (c) preparing moisture at a first temperature from oxygen and hydrogen gases by use of a catalyst;
  - (d) transferring the thus-prepared moisture into the heat treatment chamber to form a wet oxidative atmosphere over a first major surface of the wafer inside the heat treatment chamber, while keeping the moisture in a gaseous state;
  - (e) performing thermal oxidation treatment of a silicon member over a first major surface of the wafer to form an insulating film in the wet oxidative atmosphere in the heat treatment chamber by heating the first major surface of the wafer up to a second temperature higher than the first temperature;
  - (f) after step (e), replacing the wet oxidative atmosphere, in the heat treatment chamber where the wafer has been introduced, with nitrogen gas.
2. A method for fabricating a semiconductor integrated circuit device according to Claim 1, wherein said insulating film is a gate insulating film of an insulated gate field effect transistor.

3. A method for fabricating a semiconductor integrated circuit device according to Claim 2, wherein gate length of said insulated gate field effect transistor is not more than 0.25  $\mu\text{m}$ .

4. A method for fabricating a semiconductor integrated circuit device according to Claim 1, wherein the first temperature is not more than 500°C, and the second temperature is not less than 800°C.

5. A method for fabricating a semiconductor integrated circuit device according to Claim 2, wherein the first temperature is not more than 500°C, and the second temperature is not less than 800°C.

6. A method for fabricating a semiconductor integrated circuit device according to Claim 3, wherein the first temperature is not more than 500°C, and the second temperature is not less than 800°.